UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
BIN C15700
Seattle, WA 98115-0070

Refer to:
OSB2001-0191-FEC

October 2, 2001

Mr. Lawrence C. Evans
U.S. Army Corps of Engineers
Attn: Judy Linton
Regulatory Branch, CENWP-OP-G
P.O. Box 2946
Portland, OR 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation for Maintenance Dredging by Class Harbor Association in the Columbia River at River Mile 105, Multnomah County, Oregon (Corps No. 2001-00542)

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of proposed maintenance dredging by Class Harbor Association in Multnomah County, Oregon. In this Opinion, NMFS concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Snake River sockeye salmon (*Oncorhynchus nerka*), Snake River fall chinook salmon (*O. tshawytscha*), Snake River spring/summer chinook salmon, Upper Columbia River spring-run chinook salmon, Lower Columbia River chinook salmon, Upper Willamette River chinook salmon, Columbia River chum salmon (*O. keta*), Snake River steelhead (*O. mykiss*), Upper Columbia River steelhead, Middle Columbia River steelhead, Upper Willamette River steelhead, and Lower Columbia River steelhead, or destroy or adversely modify designated critical habitats. As required by section 7 of the ESA, NMFS included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are necessary to minimize the impact of incidental take associated with this action.

This Opinion also serves as consultation on Essential Fish Habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600.

If you have any questions regarding this consultation, please contact Christy Fellas of my staff in the Oregon Habitat Branch at 503.231.2307.

Sincerely,

for Donna Darm
Acting Regional Administrator

Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Act Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Maintenance Dredging by Class Harbor Association
in the Columbia River at River Mile 105,
Multnomah County, Oregon (Corps No. 2001-00542)

Agency:	Army Corps of Engineers, Portland District
Consultation Conducted By:	National Marine Fisheries Service, Northwest Region
Date Issued:	10/2/01
Refer to:	OSB2001-0191-FEC

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1. ENDANGERED SPECIES ACT

1.1 Background

On August 17, 2001, the National Marine Fisheries Service (NMFS) received a letter from the Corps of Engineers (COE) requesting formal consultation on the issuance of a 5 year permit to Class Harbor Association for maintenance dredging in the Columbia River. The proposed action is the dredging of sediment under floating homes before the in-water work window of November 1 to February 28. In the August 16, 2001 letter, the COE determined that Snake River sockeye salmon (*Oncorhynchus nerka*), Snake River spring/summer chinook salmon (*O. tshawytscha*), Snake River fall chinook salmon (*O. tshawytscha*), Lower Columbia River steelhead (*O. mykiss*), Upper Columbia River steelhead (*O. mykiss*), Snake River steelhead (*O. mykiss*), Middle Columbia River steelhead (*O. mykiss*), Columbia River chum salmon (*O. keta*), Lower Columbia River chinook salmon (*O. tshawytscha*), Upper Columbia River spring run chinook salmon (*O. tshawytscha*), Upper Willamette River steelhead (*O. mykiss*) and Upper Willamette River chinook (*O. tshawytscha*) may occur within the project area and that the proposed project is "likely to adversely affect" (LAA) the subject listed species or their designated critical habitat. References and dates listing status, critical habitat designations and ESA section 4(d) take prohibitions are listed in Table 1.

The NMFS prepared this biological opinion (Opinion) to evaluate the effects on these species. The objective of this Opinion is to determine whether the action to dredge around floating homes in the Columbia River before the in-water work window is likely to jeopardize the continued existence of the above listed species or destroy or adversely modify critical habitat.

1.2 Proposed Action

The proposed action is the excavation of approximately 9,800 cubic yards of river bottom material from under a group of floating homes on the Columbia River near RM 105 in Portland, Oregon. The purpose of the project is to remove silt that is a hazard to the moorage. The last dredging at this location was in 1981. The proposed dredging prism is 600 feet by 200 feet with a maximum depth of -10 feet Columbia River Datum. Material would be excavated using a clamshell dredge and be transported to the disposal site by barge. The applicant is proposing disposal of the material within the Ross Island agoon.

The estimated time for completion of the entire project is 30 days. The marina will be broken into four zones and houses will be moved to temporary storage while material is excavated. The estimated time for actual dredging of each zone is four days. The work will be done during September or October 2001, outside the Oregon Department of Fish and Wildlife (ODFW) preferred in-water work period for this reach of the Columbia River (November 1-February 28) (ODFW 2000). Because the subject action would occur outside the ODFW preferred in-water work period, it is not covered under NMFS' March 21, 2001, "Programmatic Biological Opinion – 15 Categories of Activities Requiring Department of the Army Permits." The sediment characterization report for the dredging project states that sediments from the proposed dredge

prism are suitable for unconfined, open-water disposal since all detected potential chemicals were below corresponding screening criteria. All excavated material from this project will be deposited within the approved Ross Island lagoon disposal site.

1.3 Biological Information and Critical Habitat

Based on typical juvenile out-migration timing for steelhead and chinook (DeHart 2001 and Dawley et al. 1986) at Bonneville Dam (RM 146) and at Jones Beach (RM47), the NMFS expects that some juvenile salmonids may be present in the project area (RM 105) during the proposed in-water work period. The proposed action would occur within designated critical habitats for listed species.

The action area is defined by NMFS regulations (50 CFR 402) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The action area includes designated critical habitats affected by the proposed action within the Columbia River (RM 105). The Columbia River at Portland, Oregon serves as a migration area for all listed species under consideration in this Opinion. It may also serve as a feeding and rearing area for juvenile chum and sub-yearling chinook salmon. Essential features of the area for the species are: (1) Substrate; (2) water quality; (3) water quantity; (4) water temperature; (5) water velocity; (6) cover/shelter; (7) food (juvenile only); (8) riparian vegetation; (9) space; and (10) safe passage conditions (50 CFR 226). The essential features this proposed project may affect are water quality (turbidity) and disturbance of river substrate resulting from the excavation activities.

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify designated critical habitat. This analysis involves the initial steps of (1) defining the biological requirements and current status of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. If NMFS concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent measures available.

Table 1. References for additional background on listing status, biological information, and critical habitat elements for the listed and proposed species addressed in this biological opinion.

Species	Listing Status	Critical Habitat	Protective Regulations	Biological Information, Historical Population Trends
Columbia River chum salmon	March 25, 1999; 64 FR 14508, Threatened	February 16, 2000; 65 FR 7764	July 10, 2000; 65 FR 42422	Johnson *et al.* 1997; Salo 1991
Lower Columbia River steelhead	March 19, 1998; 63 FR 13347, Threatened	February 16, 2000; 65 FR 7764	July 10, 2000; 65 FR 42422	Busby *et al.* 1995; 1996
Middle Columbia River steelhead	March 25, 1999; 64 FR 14517, Threatened	February 16, 2000; 65 FR 7764	July 10, 2000; 65 FR 42422	Busby *et al.* 1995; 1996
Upper Columbia River steelhead	August 18, 1997; 62 FR 43937, Endangered	February 16, 2000; 65 FR 7764	July 10, 2000; 65 FR 42422	Busby *et al.* 1995; 1996
Upper Willamette River steelhead	March 25, 1999 64 FR 14517, Threatened	February 16, 2000; 65 FR 7764	July 10, 2000; 65 FR 42422	Busby *et al.* 1995; 1996
Snake River Basin steelhead	August 18, 1997; 62 FR 43937, Threatened	February 16, 2000; 65 FR 7764	July 10, 2000; 65 FR 42422	Busby *et al.* 1995; 1996
Snake River sockeye salmon	November 20, 1991; 56 FR 58619, Endangered	December 28, 1993; 58 FR 68543	November 20, 1991; 56 FR 58619	Waples *et al.* 1991a; Burgner 1991
Lower Columbia River chinook salmon	March 24, 1999; 64 FR 14308, Threatened	February 16, 2000; 65 FR 7764	July 10, 2000; 65 FR 42422	Myers *et al.*1998; Healey 1991
Upper Columbia River spring-run chinook salmon	March 24, 1999; 64 FR 14308, Endangered	February 16, 2000; 65 FR 7764	July 10, 2000; 65 FR 42422	Myers *et al.*1998; Healey 1991
Upper Willamette River chinook salmon	March 24, 1999; 64 FR 14308, Threatened	February 16, 2000; 65 FR 7764	July 10, 2000; 65 FR 42422	Busby *et al.* 1995; 1996
Snake River spring/summer-run chinook salmon	April 22, 1992; 57 FR 14653, Threatened	December 28, 1993; 58 FR 68543	April 22, 1992; 57 FR 14653	Matthews and Waples 1991; Healey 1991
Snake River fall chinook salmon	April 22, 1992; 57 FR 14653, Threatened	December 28, 1993; 58 FR 68543	April 22, 1992; 57 FR 14653	Waples *et al.* 1991b; Healey 1991

For the proposed action, a jeopardy analysis by NMFS considers direct or indirect mortality of fish attributable to the action. A critical habitat analysis by NMFS considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing salmon under the existing environmental baseline.

1.4.1 Biological Requirements

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed salmonids is to define the species' biological requirements that are most relevant to each consultation. The NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess to the current status of the listed species, NMFS starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for the listed species to survive and recover to a naturally reproducing population level at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful rearing and migration. The current status of the listed species, based upon their risk of extinction, has not significantly improved since the species were listed.

1.4.2 Environmental Baseline

The most recent evaluation of the environmental baseline for the Columbia River is part of the NMFS' biological opinion for the Federal Columbia River Power System (FCRPS), December 2000. This Opinion assessed the entire Columbia River system below Chief Joseph Dam (or wherever a tributary stream meets the Columbia River below Chief Joseph Dam) and downstream to the farthest point (the Columbia River estuary and nearshore ocean environment) at which listed salmonids are influenced. For a detailed evaluation of the environmental baseline of the Columbia River Basin please refer to the FCRPS opinion (NMFS 2000).

The quality and quantity of freshwater habitats in much of the Columbia River basin have declined dramatically in the last 150 years. Forestry, farming, grazing, road construction, hydrosystem development, mining, and urbanization have radically changed the historical habitat conditions of the basin. Depending on the species, they spend from a few days to 1 or 2 years in the Columbia River estuary before migrating out to the ocean and another 1 to 4 years in the ocean before returning as adults to spawn in their natal streams.

Water quality in streams throughout the Columbia River basin has been degraded by human activities such as dams and diversion structures, water withdrawals, farming and grazing, road

construction, timber harvest activities, mining activities, and urbanization. Tributary water quality problems contribute to poor water quality where sediment and contaminants from the tributaries settle in mainstem reaches and the estuary. Temperature alterations also affect salmonid metabolism, growth rate, and disease resistance, as well as the timing of adult migrations, fry emergence, and smoltification. Many factors can cause high stream temperatures, but they are primarily related to land-use practices rather than point-source discharges. Loss of wetlands and increases in groundwater withdrawals have contributed to lower base-stream flows, which in turn contribute to temperature increases. Channel widening and land uses that create shallower streams also cause temperature increases.

Pollutants also degrade water quality. Salmon require clean gravel for successful spawning, egg incubation, and emergence of fry. Fine sediments clog the spaces between gravel and restrict the flow of oxygen-rich water to the incubating eggs. Excess nutrients, low levels of dissolved oxygen, heavy metals, and changes in pH also directly affect the water quality for salmon and steelhead.

Water quantity problems are a significant cause of habitat degradation and reduced fish production. Withdrawing water for irrigation, urban, and other uses can increase temperatures, smolt travel time, and sedimentation. Return water from irrigated fields can introduce nutrients and pesticides into streams and rivers. On a larger landscape scale, human activities have affected the timing and amount of peak water runoff from rain and snowmelt. Many riparian areas, flood plains, and wetlands that once stored water during periods of high runoff have been developed. Urbanization paves over or compacts soil and increases the amount and pattern of runoff reaching rivers and streams.

The Columbia River estuary has also been changed by human activities. Historically, the downstream half of the estuary was a dynamic environment with multiple channels, extensive wetlands, sandbars, and shallow areas. The mouth of the Columbia River was about 4 miles wide. Today, navigation channels have been dredged, deepened and maintained, jetties and pile-dike fields have been constructed to stabilize and concentrate flow in navigation channels, marsh and riparian habitats have been filled and diked, and causeways have been constructed across waterways. These actions have decreased the width of the mouth of the Columbia River to 2 miles and increased the depth of the Columbia River channel at the bar from less than 20 to more than 55 feet.

In the action area for the proposed project, near River Mile 105, the environmental baseline has been further degraded by human activity. This area consists of marinas, houseboats and docks and a large area of industrial shipping facilities. The riparian area contains little or no cover and vegetation at this stretch of the Columbia River. The urbanization of this area contributes to the degraded conditions of the Columbia River including reduced water quality, increased water temperature, altered timing and quantity of runoff, and diminished riparian cover and habitat refugia.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

Dredging and disposal of the dredged material speed up the natural processes of sediment erosion, transportation and deposition (Morton 1977). The physical effects to the river system from dredging and disposal briefly summarized are: Temporary increases in turbidity, changes in bottom topography with resultant changes in water circulation, and changes in the mechanical properties of the sediment at the dredge and disposal sites (Morton 1977). The significance of the effect is a function of the ratio of the size of the dredged area to the size of the bottom area and water volume (Morton 1977).

Potential impacts to listed salmonids from the proposed action include both direct and indirect effects. Potential direct effects include entrainment of juvenile fish (Dutta and Sookachoff 1975a, Boyd 1975, Armstrong *et al.* 1982, Tutty 1976) and mortality from exposure to suspended sediments (turbidity). Potential indirect effects include behavioral (Sigler *et al.* 1984, Berg and Northcote 1985, Whitman et al. 1982, Gregory 1988) and sub-lethal impacts from exposure to increased turbidity (Sigler 1988, Sigler *et al.* 1984, Kirn *et al.* 1986, Emmett *et al.* 1988, Servizi 1988); mortality from predatory species that benefit from activities associated with dredged material disposal; and loss of benthic food sources resulting from dredging and disposal of dredged material (Morton 1977).

Suspended sediment and turbidity influences on fish reported in the literature range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorous fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the frequency and the duration of the exposure (not just the TSS concentration).

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Birtwell *et al.* 1984, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (McLeay *et al.* 1984, 1987, Sigler *et al.* 1984, Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, except when the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). In addition, a potentially positive reported effect is providing refuge and cover from predation (Gregory and Levings 1988).

Fish that remain in turbid, or elevated TSS, waters experience a reduction in predation from piscivorous fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade-off (e.g., enhanced survival) to the cost of potential physical effects (e.g., reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and magnitude of physical or

behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids may be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjorn and Reiser 1991). However, research shows that chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding et al. 1987, Lloyd 1987, Servizi and Martens 1991).

Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence *et al.* 1996). Newly emerged salmonid fry may be vulnerable even to moderate amounts of turbidity (Bjornn and Reiser 1991). Other behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment (Berg and Northcote 1985). Fine redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser 1991). The probability of direct mortality is low, because the turbidity should be localized and brief.

In addition to turbidity, salmonids may be exposed to contaminants in the water and in the sediment. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain polycyclic aromatic hydrocarbons (PAHs). PAHs may cause a variety of deleterious effects (cancer, reproductive anomalies, immune dysfunction, and growth and development impairment) to exposed fish (Johnson 2000, Johnson et al. 1999, Stehr et al. 2000). Wood used for pilings and docks is commonly treated with other chemicals such as ammoniacal copper zinc arsenate (ACZA) and chromated copper arsenate (CCA) (Poston 2001). Direct exposure to the contaminants occurs as salmon migrate past contaminated areas or when the area is used for rearing, and indirect exposure occurs through ingestion of other organisms that have been exposed (Posten 2001).

The in-water work necessary to complete the proposed project will be minimized by working during low tide periods. The duration of work will be short (two to four days). No riparian vegetation will be lost because of this project, since none currently exists in the project area. Most juveniles have already completed their migration and NMFS expects low numbers of juveniles present at the project site during the proposed work. The sediment characterization report for the dredging project states that sediments from the proposed dredge prism are suitable for unconfined, open-water disposal since all detected potential chemicals were below corresponding screening criteria. The potential net effect from of the proposed action is expected to maintain the present conditions within the action area.

1.5.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. Therefore, these actions are not considered cumulative to the proposed action.

The NMFS is not aware of any specific future non-federal activities within the action area that would cause greater impacts to listed species than presently occurs. However, development of structures and vegetation clearing along the streams is likely to continue. The NMFS assumes that future private and state actions will continue at similar intensities as in recent years**.**

1.6 Conclusion

NMFS has determined, based on the available information, that the proposed action covered in this Opinion is not likely to jeopardize the continued existence of listed salmonids or adversely modify critical habitats. NMFS used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NMFS believes that the proposed action would cause a minor, short-term degradation of anadromous salmonid habitat due to turbidity caused by in-water excavation.

1.7 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are *discretionary* measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. The NMFS believes the following conservation recommendations are consistent with these obligations, and therefore should be carried out by the Corps:

Requests for consultations requiring in-water work outside the recommended window should clearly state the reasons why the project was not proposed to occur during either the previous or the upcoming work window. The ODFW-recommended work window was developed in part to minimize the effects to ESA listed species from in-water activities. Adherence to this guideline avoids needlessly exposing listed species to harmful activities during their most vulnerable life stages. In-water work windows are an essential tool to avoid or minimize adverse affects to ESA-listed species, as well as species covered by the Essential Fish Habitat provisions of the Magnuson-Stevens Act.

1.8 Reinitiation of Consultation

This concludes formal consultation on these actions in accordance with 50 CFR 402.14(b)(1). Reinitiation of consultation is required: (1) If the amount or extent of incidental take is exceeded; (2) If the action is modified in a way that causes an effect on the listed species that was not previously considered in the biological assessment and this biological opinion; (3) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

2. INCIDENTAL TAKE STATEMENT

Section 4 (d) and Section 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering (64 FR 60727; November 8, 1999). Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement. An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount or Extent of the Take

The NMFS anticipates that the action covered by this Opinion has more than a negligible likelihood of resulting in incidental take of listed salmonids because of detrimental effects from increased turbidity levels (non-lethal), and the potential for direct incidental take during in-water work (lethal and non-lethal). Effects of actions such as the one covered by this Opinion are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information provided by the COE and other available information, NMFS anticipates that an unquantifiable amount of incidental take

could occur as a result of the action covered by this Opinion. The extent of the take is limited to the project area.

2.2 Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of listed salmonid species resulting from the action covered by this Opinion. The COE shall include, as part of the 5 year Section 10 River and Harbors Act permit, measures that will:

1. Minimize the amount and extent of incidental take resulting from in-water work required to complete the project addressed in this Opinion by implementing measures to limit the duration and extent of in-water work.

2. Complete a comprehensive monitoring and reporting program to ensure this Opinion is meeting its objective of minimizing the likelihood of take from permitted activities.

2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the COE must require, as part of the Section 10 Permit, and the applicant and/or their contractors must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1(in-water work) above, the COE shall ensure that:

    a. Before dredging in subsequent years, the applicant will complete a sediment analysis and submit to NMFS for review to insure that sediment has been sampled for presence of contaminants.

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    b. All work below the ordinary high water line will be completed within two hours before or after low tide periods for that reach of the Columbia River where the project is located. Any variances to work outside the low tide period will first be coordinated with and approved by, NMFS.

    c. Construction impacts (excavation) will be confined to the minimum area necessary to complete the project.

    d. Once excavation work is begun, it will be completed within four days. The entire project will be completed by the end of the in-water work window, February28, 2002.

2. To implement reasonable and prudent measure #2 (monitoring, above, the COE shall ensure that:

   a. Within 30 days of completing the project, the COE will submit a monitoring report to NMFS describing the COE's success meeting these terms and conditions. This report will consist of the following information.
      i. Project identification.
         (1) Project name;
         (2) starting and ending dates of work completed for this project; and
         (3) the name and address of the construction supervisor.
      ii. A narrative assessment of the project's effects on natural stream function.
      iii. Photographic documentation of environmental conditions at the project site before, during and after project completion.
         (1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.
         (2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
         (3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

   b. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, located at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; telephone: 360/418-4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

   c. Monitoring reports will be submitted to:

      National Marine Fisheries Service
      Oregon Habitat Branch
      Attn: OSB2001-0191
      525 NE Oregon Street
      Portland, OR 97232

3. MAGNUSON-STEVENS ACT

3.1 Background

The objective of the Essential Fish Habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed fisheries within the waters of Washington, Oregon, and California. The designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km)(PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years)(PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border.

Detailed descriptions and identifications of EFH for the groundfish species are found in the Final Environmental Assessment/Regulatory Impact Review for Amendment 11 to The Pacific Coast Groundfish Management Plan (PFMC 1998a) and the NMFS Essential Fish Habitat for West Coast Groundfish Appendix (Casillas *et al.* 1998). Detailed descriptions and identifications of EFH for the coastal pelagic species are found in Amendment 8 to the Coastal Pelagic Species Fishery Management Plan (PFMC 1998b). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of the potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed actions are detailed above in section 1.2. The action area includes designated critical habitat affected by the proposed action within the Columbia River (RM 105). This area has been designated as EFH for various life stages of chinook and coho salmon and Starry flounder (*Platyichthys stellatus*).

3.5 Effects of Proposed Action

As described in detail in section 1.5, the proposed activities may result in detrimental short- and long-term adverse effects to a variety of habitat parameters. Excavation of river bottom material will result in disturbance of the substrate and a temporary increase in turbidity.

3.6 Conclusion

NMFS believes that the proposed action may adversely affect the EFH for Pacific salmon species and Starry flounder (*Platyichthys stellatus*).

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the Corps, all Conservation Recommendations outlined above in Section 1.7 and all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Sections 2.2 and 2.3 are applicable to EFH. Therefore, NMFS incorporates each of those measures here as EFH recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NMFS after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NMFS, the agency must explain its reasons for not following the recommendation.

3.9 Consultation Renewal

The Corps must reinitiate EFH consultation with NMFS if either action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

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